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## CHARCOAL INDUSTRY GROWS IN MIDSOUTH

The Midsouth manufactured 95,000 tons of wood charcoal in 1961. This represents a gain of 28 percent over output in 1956, when the industry was last surveyed. The number of charcoal plants has increased from 29 to 90.

Of the plants active in 1961, Tennessee had 45, Arkansas 13, Texas 10, Oklahoma 8, Alabama 7, Mississippi 6, and Louisiana 1. These plants operated 430 kilns that ranged in capacity from less than a ton of charcoal to 45 tons. They used 170,000 cords of wood, virtually all hardwood. Roundwood made up 82 percent of the intake; the rest was slabs, edgings, and other plant residues.

Most charcoal is now made into briquettes. In the past 5 years the volume of briquettes tripled; total 1961 output was more than 70,000 tons (weight of binding materials included). The historically important industrial market plummeted to 4,300 tons--one-seventh of the 1956 tonnage.

The number of briquetting plants increased from 8 to 17 in the past 5 years. Some 85 percent of the charcoal made into briquettes was carbonized in briquetting company kilns. The remaining volume was purchased from independent kiln operators for an average price of \$34.35 per ton.

Wood costs per ton of charcoal output averaged \$18.43 for roundwood and \$16.44 for residues.

Manufacturers received an average of \$36.68 per ton for charcoal in bulk and 3.6 cents per pound bagged. Briquettes averaged 4.1 cents per pound.

A detailed list of charcoal and briquette manufacturers is available on request. --Joe F. Christopher.

### SEEDBED BURNS IN ARKANSAS MOUNTAINS COMPACT SURFACE SOIL

In the Ouachita Mountains of Arkansas, cutting a pine stand back to seed trees and burning the site for seedbed preparation increased volume weight and reduced the degree of aggregation in the surface soil.

Study plots were on Herndon and Goldston soils with slopes not exceeding 15 percent. The surface 3 inches, to which all measurements were confined, was a loam with high gravel content. Texture averaged 39 percent sand, 47 percent silt, and 14 percent clay. Litter-humus approximated 8,000 pounds per acre, oven-dry. In June 1958 a shortleaf pine sawtimber stand of 5,000 board feet per acre was cut back to 6 seed trees and a hardwood understory of about 35 square feet of basal area per acre was deadened with chemicals.

Three half-acre plots were burned in September 1958, and three were left unburned. The fire was set when the humus was moist but the litter and logging slash were dry. Air temperatures were 88 to 95 degrees, relative humidity about 46 percent, and wind from 0 to 5 m.p.h. These conditions resulted in a hot fire which frequently bared mineral soil.

No marked change in soil properties was observed in 1959. By 1960 volume weight had risen from 0.997 to 1.169 grams per cc. on burned plots, while remaining unchanged (1.042) on unburned. The increase on the burns was significant at the 0.05 level. The burned plots appeared to have lost some detention storage capacity and to have gained retention storage, but the differences were small. No statistically significant changes appeared in average moisture content at saturation (44 percent) or at field capacity (26 percent).

Soil texture did not change, but water-stable aggregates were broken down. On burned plots particles or aggregates 2 mm. and larger made up 45 percent of the total weight in

1958 and 28 percent in 1960, while the proportion of particles smaller than 0.1 mm. rose from 14 to 28 percent. A similar change occurred on unburned plots, but the change in particles smaller than 0.1 mm. was significantly smaller in this case.

The changes may reduce soil capacity to absorb rain. The breakdown of aggregates increased fines, which apparently filled many large pores and channels left by decaying fine roots while adding slightly to retention porosity. On the burns, the movement was sufficient to increase volume weight. On the unburned cutovers the less complete breakdown and better surface cover minimized compaction.--*D.R. Bower and J.L. Smith.*

### **COLD WINTER NO CHECK TO TEXAS PINE BEETLES**

This past winter, temperatures in east Texas fell to their lowest for the twentieth century. The sharpest drop was on January 12, when some weather stations reported 5° F.

As they went shivering about their tasks, some Texas foresters consoled themselves with the hope that the freeze might arrest the southern pine beetle, which has been spreading steadily for four or five years.

Regrettably, but also predictably, these hopes were disappointed. The beetles thawed out about as fast as the foresters. By late February many new attacks had developed in some Big Thicket plots that were being kept under observation cooperatively by the Texas Forest Pest Committee and the Southern Forest Experiment Station.

Though the spring was unusually early and warm, this had very little to do with the results. Studies elsewhere have shown that beetle populations are not materially reduced until the thermometer reaches 0, and that subzero weather is needed for a complete kill. The egg stage is the most resistant.

So it just isn't likely to get cold enough in southeast Texas to kill many southern pine beetles. In fact, it seems clear from the Big Thicket plots that broods not only survive but continue to develop nearly all winter--though more slowly than in summer. In some years larvae have matured and adults have emerged to attack healthy trees even in December and January. Changes in the color of infested trees have also been noticeable during winter.--*R.C. Thatcher.*

## LOGS SHRINK IN FALL STORAGE

Hardwood logs can lose scaling diameter during only 5 weeks of fall storage. Careful measurements along marked diameters on 92 fresh logs of sweetgum, and red, overcup, and white oak showed appreciable reductions between October 23 and November 28, 1961. Observations were made in east-central Arkansas.

In terms of Doyle log scale, red oak logs averaged 1.3 percent reduction in footage, overcup oak 0.6 percent, and white oak and sweetgum 0.4 percent.

The southern logging industry customarily decks logs in fall for use during high-water periods in winter and spring. An emergency log demand closed this study before the end of the normal storage period, but results nevertheless suggest that an important reduction in scaling volume can occur in 4 to 5 months. Shrinkage may explain part of the variation sometimes noted, for the same lot of logs, between scales made by a forestry department in October and a sawmill division in April.--B.E. Carpenter, Jr.

## RECENT PUBLICATIONS

- \*Gammage, J.L., and Maisenhelder, L.C. *Easy way to sow cottonwood nursery beds*. U.S. Forest Service Tree Planters' Notes 51, April 1962, pp. 19-20.
- \*McClurkin, D.C. *Good survival of nondormant loblolly pine seedlings*. U.S. Forest Service Tree Planters' Notes 51, April 1962, p. 10.
- \*McKnight, J.S., and Maisenhelder, L.C. *Change to quick trees*. U.S. Forest Service Tree Planters' Notes 51, April 1962, pp. 23-24.
- \*Smith, V.K., Jr., and Johnston, H.R. *Eastern subterranean termite*. USDA Forest Pest Leaflet 68, 7 pp.
- \*Southern Forest Experiment Station. *1961 at the Southern Forest Experiment Station*. 94 pp.
- \*Sternitzke, H.S. *How much timber? Where?* Forests & People, Second Quarter, 1962, pp. 30-31, 45.

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\*Copies are available at the Southern Station.